

CICHLID FAMILY—CICHLIDAE

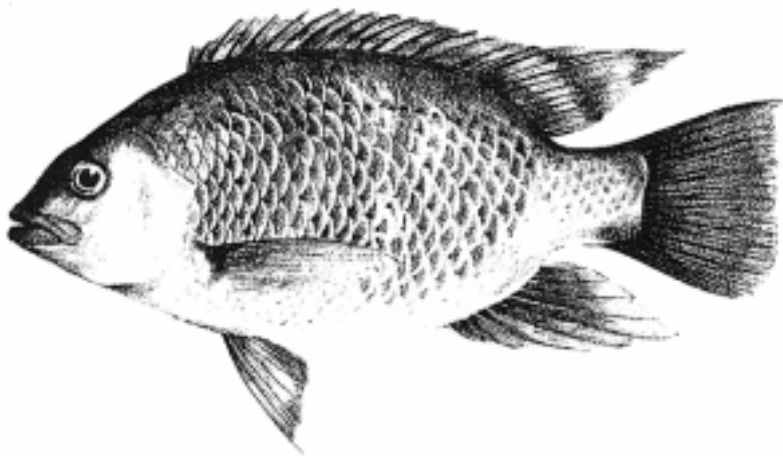
Cichlids are freshwater fishes inhabiting tropical portions of America, Africa, and southern and western Asia. Superficially they resemble the sunfishes and are characterized by two incomplete lateral lines and three to ten spines in the anal fin.

Both *Tilapia zillii* and *T. mossambica* are now permanently established in several localities in southern California and their ranges are expanding.

Presently, tilapia are of importance as game fish in California primarily at the Salton Sea; however, their popularity with anglers is growing.

MOZAMBIQUE TILAPIA

Tilapia mossambica



DISTINGUISHING CHARACTERISTICS

Body generally brownish or olive green on the back and silvery on the sides. Adult fish with dorsal fin long, continuous, and free of a distinct spot. Color of breeding males black with dorsal and caudal fins edged in red. Head with concave upper profile. Mouth large, extending past the outer margin of the eye. Gill rakers short with 14 or more present on the lower part of the anterior arch.

DISTRIBUTION IN CALIFORNIA

In 1964, the first verified free-living population of this species in California was found near the Hot Mineral Spa just east of the Salton Sea. Four years later large populations were found in the Bard Valley near Winterhaven, Imperial County. The source of these two groups is not certain, but the Bard Valley group probably originated from tilapia stocked by the Arizona Game and Fish Department in several drains near Yuma, Arizona.

Starting in 1970, introductions of *T. mossambica* by local irrigation districts for the purpose of controlling aquatic weed growth resulted in permanent populations in the irrigation systems of Imperial, Palo Verde, and Coachella valleys, and the Salton Sea, Imperial and Riverside counties, as well as in the lower Colorado River near the Mexican border. In 1973, introductions of *T. zillii* and *T. mossambica* were made in the San Gabriel, Los Angeles, and Santa Ana river

drainages. *T. mossambica* has found a permanent niche in a number of coastal rivers and drains close to the ocean. They are especially abundant near the thermal effluents of power plants. Lake Elsinore in Riverside County also supports an abundant, reproducing population.

LIFE HISTORY NOTES

The Mozambique tilapia is a euryhaline species normally inhabiting fresh water but capable of living and breeding in sea water. Preferred habitat is warm, weedy ponds, canals, and river backwaters. In the lower Colorado River, they are abundant in areas influenced by warm, salty irrigation return water. In the San Gabriel River and other coastal rivers and drains, they are found predominantly in the tidal zone. *F. mossambica* do not survive water temperatures below 55°F for an extended period.

Males grow faster and are larger than females, achieving a length of 15 in. and a maximum age of 11 years. They breed all year if water temperatures remain above 64°F. Males develop bright breeding coloration, show strong territorial behavior, and dig a shallow nest about 12 in. in diameter. After the eggs have been deposited and fertilized, the female picks them up, and carries them in her mouth until sometime after hatching occurs.

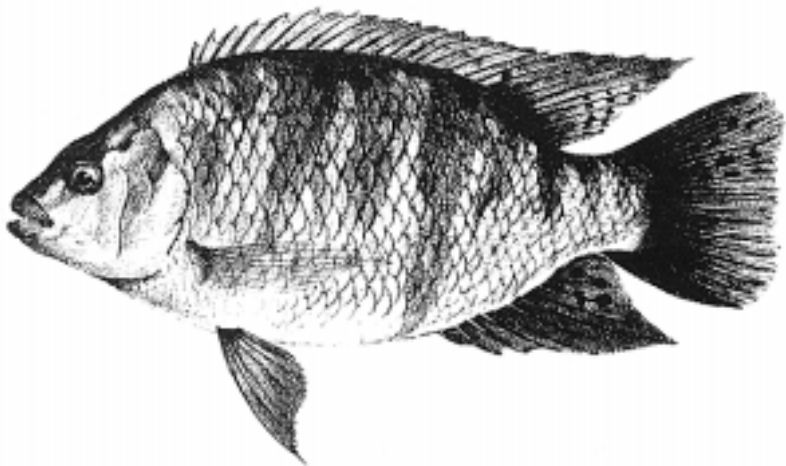
Anglers use mostly worms and peas as bait.

RELATED SPECIES

Since 1966, the Zanzibar strain of *Tilapia mossambica* has been recognized as a distinct new species, *Tilapia hornorum*. Both species hybridize freely and have similar habits and other characteristics. It is extremely difficult to distinguish them from external characters alone although there are slight differences in the coloration of breeding males.

REDBELLY TILAPIA

Tilapia zillii



DISTINGUISHING CHARACTERISTICS

The body is dark green, olive, or brown usually with six to eight more-or-less vertical bars. A dark stripe is sometimes present along the middle of the side. During spawning months the throat and belly are a brilliant blood-red. This species can be readily separated from *T. mossambica* by its lower number of gill rakers (8 to 12 vs. 14 to 20) on the lower limb of the gill arch, and in adults, the distinctive “tilapia” mark, which is a yellow-ringed dark “eye spot” at the base of the anterior soft dorsal rays.

DISTRIBUTION IN CALIFORNIA

The Fish and Game Commission prohibits the importation, transportation, and possession of the redbelly tilapia except in the six counties of Imperial, Riverside, San Bernardino, San Diego, Orange, and Los Angeles in southern California. Presently, planting has been restricted to waters within the Coachella and Imperial valleys. The redbelly tilapia is now permanently established in the Salton Sea and its adjoining drains. It has also found refuge in several Colorado River backwaters downstream from Parker Dam.

LIFE HISTORY NOTES

It is generally found in shallow, inshore waters, especially in sheltered bays. This species is quite common on muddy shores, where there is abundant vegetation. The redbelly tilapia feeds principally on the leaves and stems of rooted aquatic plants and their associated algae; invertebrates and fish remains have also been found in their stomachs. It rarely exceeds 12 in. in length. Spawning takes place year around, when water temperatures reach 64°F. Eggs are laid in a prepared "nest depression" and after fertilization, guarded by one or both of the parents.

It can tolerate temperatures up to 93°F and salinities up to 45‰ (parts per thousand). However, it will not reproduce at salinities above 29‰ and will die if temperatures drop below 44°F for an extended period. The redbelly tilapia can withstand cooler water temperatures as the salinity of the water increases.